

Application Number 09/831,496
Attorney Docket Number 0425-0837P
Page 2 of 8

solvent outlet tube and wherein said device includes a solvent inlet tube and a solvent outlet tube with different inner diameters.

8. (thrice amended) A high performance liquid chromatographic apparatus having a flow velocity gradient of 250 microliters per minute or less, said apparatus comprising a diffusion promoting device that comprises a solvent inlet tube and a solvent outlet tube, wherein said device includes a solvent inlet tube and a solvent outlet tube with different inner diameters.

9. The high performance liquid chromatographic apparatus according to Claim 8, in which the diffusion promoting device is connected between a component concentration column and the separation column.

10. (four times amended) A high performance liquid chromatographic apparatus having a flow velocity gradient of 250 microliters per minute or less, said apparatus being one in which a solvent pump (P1), an injector (I), and a switching valve (V) are connected in this order in one line; and a solvent pump (P2), a switching valve (V), a diffusion promoting device (DU) that comprises a solvent inlet tube and a solvent outlet tube, wherein said device includes a solvent inlet tube and a solvent outlet tube with different inner diameters, a separation column (C), and a detector (D) are connected in another line.

11. (four times amended) A high performance liquid chromatographic apparatus having a flow velocity gradient of 250 microliters per minute or less, said apparatus being one in which a solvent pump (P1), a switching valve (V), a solvent mixer (MC), and a switching valve (V) are connected in this order in one line; a solvent pump (P2), a switching valve (V), a diffusion promoting device (DU) that comprises a solvent inlet tube and a solvent outlet tube, wherein said

Application Number 09/831,496
Attorney Docket Number 0425-0837P
Page 3 of 8

device includes a solvent inlet tube and a solvent outlet tube with different inner diameters, a separation column (C), and a detector (D) are connected in another line; and a switching valve (V), a component concentration column (M), and a switching valve (V) are connected in a different line.

12. A method for analyzing a trace amount of a component in a sample with improved detection sensitivity for use in the high performance liquid chromatographic apparatus according to Claim 10, which comprises trapping the target component in the component concentration column (M) by means of a mobile phase discharged from the solvent pump (P1); discharging a different mobile phase from the solvent pump (P2) by turning the switching valve; and eluting the target component from the separation column (C) through diffusion of the target component using the diffusion promoting device (DU).

13. A method for analyzing a trace amount of a component in a sample with improved detection sensitivity for use in the high performance liquid chromatographic apparatus according to Claim 11, which comprises injecting the target component into the component concentration column (M) while filling a solvent in the solvent mixer (MC) by means of the solvent pump (P1); discharging a mobile phase from the pump (P2) by turning the switching valve; and eluting the target component from the separation column (C) through diffusion of the target component using the diffusion promoting device (DU).

16. The high performance liquid chromatographic apparatus according to one of Claims 8, 10, and 11, wherein a frit is inserted into at least one of the solvent inlet tube, the solvent outlet tube, and a position between the solvent inlet tube and the solvent outlet tube.

Application Number 09/831,496
Attorney Docket Number 0425-0837P
Page 4 of 8

17. The high performance liquid chromatographic apparatus according to Claim 16, wherein the frit is a sintered filter, a ceramic, a metal mesh, or a cellulose fiber.

18. The high performance liquid chromatographic apparatus according to one of Claims 8, 10, and 11, wherein the low flow velocity gradient high performance liquid chromatographic apparatus is a gradient micro high performance liquid chromatographic apparatus, a gradient semimicro high performance liquid chromatographic apparatus, or a gradient capillary high performance liquid chromatographic apparatus.

Attached hereto is a marked up version showing the claim amendments made by this Amendment.